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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,231	04/30/2001	Arvind Halliyal	F0630	3855
7590 10/04/2005			EXAMINER	
Himanshu S. Amin Amin & Turocy, LLP National City Center, 24th Floor 1900 E. 9th Street Cleveland, OH 44114			BARAN, MARY C	
			ART UNIT	PAPER NUMBER
			2857	
DATE MAILED: 10/04/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 09/845,231	Applicant(s) HALLIYAL ET AL.	
	Examiner Mary Kate B. Baran	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 28, 29 and 35-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 28, 29 and 37 is/are allowed.
- 6) ☒ Claim(s) 35 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Response to Amendment*

1. The action is responsive to the Amendment filed on 27 September 2005. Claims 1-5, 28, 29 and 35-37 are pending. Claims 1, 28 and 35-37 are amended. Claims 6-27 and 30-34 are cancelled.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maguire et al. (U.S. Patent No. 6,038,525) (hereinafter Maguire) in view of Robinson et al. (U.S. Patent No. 6,541,783) (hereinafter Robinson).

Referring to claim 35, Maguire teaches a method for regulating a process for depositing a thin film (see Maguire, column 2 lines 39-48), comprising: using one or more deposition components to deposit a thin film (see Maguire, Figure 8); determining the characteristics of the deposited thin film utilizing reflected light and comparing to known thin film reflected light signatures (see Maguire, Figure 8); and using a processor to coordinate control of the one or more deposition components to deposit subsequent thin film based at least in part of the characteristics of the deposited thin data gathered from comparing the reflected light to known thin film light signatures (see Maguire,

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Figure 8, column 5 lines 61-67), but does not teach that the processor partitions the thin film into one or more monitoring zones.

Robinson teaches that the processor partitions the thin film into one or more monitoring zones (see Robinson, column 11 lines 27-50).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Maguire to include the teachings of Robinson because partitioning the thin film into one or more monitoring zones and determining the deposition conditions in the monitored zone would have allowed the skilled artisan to enhance the physical robustness of reticle mask (see Robinson, column 40-44).

Referring to claim 36, Maguire teaches a system for regulating a process for depositing a thin film (see Maguire, column 2 lines 39-48), comprising: means for using one or more deposition components to deposit a thin film (see Maguire, Figure 8); means for determining the acceptability of the thin film deposition utilizing reflected light and comparing to known thin film reflected light signatures (see Maguire, Figure 8); and means for using a processor to coordinate control of the one or more deposition components to deposit the thin film a processor based at least in part of the acceptability of the thin film deposition as determined by comparing the known thin film signatures to reflected light (see Maguire, Figure 8, column 5 lines 61-67), but does not teach that the processor partitions the mask into a plurality of grid blocks and makes a determination of deposition conditions at the one or more grid blocks.

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Robinson teaches that the processor partitions the mask into a plurality of grid blocks and makes a determination of deposition conditions at the one or more grid blocks (see Robinson, column 11 lines 27-50).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Maguire to include the teachings of Robinson because partitioning the thin film into one or more monitoring zones and determining the deposition conditions in the monitored zone would have allowed the skilled artisan to enhance the physical robustness of reticle mask (see Robinson, column 40-44).

***Allowable Subject Matter***

3. Claims 1-5, 28, 29 and 35-37 are allowed.

4. The following is an examiner's statement of reasons for allowance:

Claims 1-5 are allowable over the prior art because a system for controlling a thin film deposition process, comprising: a processor that communicates with the scatterometry system and the thin film deposition component driving system, the processor analyzes the deposited thin film by partitioning a conceptual mask into a plurality of grid blocks mapped on the wafer and determines deposition parameter adjustments for the one or more deposition components, the deposition parameter adjustments based at least in part upon data received from the scatterometry system is not found, taught or suggested in the prior art of record.

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Claims 28 and 29 are allowable over the prior art because a method for monitoring and controlling the deposition of a thin film, comprising: using a processor to partition the thin film into one or more conceptual grid blocks; directing a light within the one or more grid blocks associated with the thin film; employing a scatterometry system to analyze the reflected light from the one or more grid blocks associated with the thin film to determine one or more properties of the thin film; and monitoring structural irregularities of the deposited thin film by comparing reflected light data collected from the one or more grid blocks associated with the thin film with a database comprising known thin film reflected light signatures is not found, taught or suggested in the prior art of record.

Claim 37 is allowable over the prior art because a system for controlling a thin film deposition process, comprising: a coherent light source directed onto one or more conceptual grid blocks of the thin film; a scatterometry system that analyzes the reflected light to determine one or more properties of the thin film at the one or more grid blocks; and a processor that control the at least one deposition component based at least in part on data received from the scatterometry system is not found, taught or suggested in the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

5. Applicant's arguments filed 27 September 2005 have been fully considered but they are not persuasive.

Applicant argues that Robinson et al. does not teach "partitioning the thin film into one or more monitoring zones." However, Applicant's arguments are not well taken. Robinson teaches patterning subfields of a mask, etching the mask onto the wafer and determining the film thickness between the grid of struts on the wafer (i.e. monitoring zones) (see Robinson et al., column 11 lines 26-50).

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B. Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 9:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

28 September 2005



MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
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